Nutten et al teach a liquid fuel burner using an air aspirated nozzle to mix the fuel drawn into the nozzle by the pressurized air. A control unit 60 (in several different described and illustrated embodiments) controls fuel flow to the nozzle through a diaphragm which diaphragm controls a valve and which diaphragm is controlled by pressure differentials existing on opposite sides of the diaphragm. Nutten et al do not teach an infrared burner and there is no reference whatsoever in the disclosure of Nutten et al to the flame created by the combustion of the fuel and air and the container for the flame. Nutten et al further do not teach a metering valve. Nutten et al teach merely a "manually operable valve 58" for ...cutting off the fuel supply when desired." (column 4, lines 43-45). There is, therefore, no adjustment for the fuel flowing to the nozzle 40 other than through the adjustment of the pressurized air passing to the nozzle 40 through outlet duct 36 communicating with the pump chamber 22. There is no metering valve in Nutten et al and there is no space to put in such a metering valve.

Nor does Reichhelm assist Nutten et al. There are no metering valves in Reichhelm. Both valves 34 and 22 are ball valves similar to the ball valve 58 in Figure 1 of Nutten et al. A metering valve offers precise control of the fuel in order to accurately control the BTU output during the combustion of the fuel which enters the air aspirated nozzle through the metering valve. Without a metering valve, precise fuel control is absent which makes adjustable BTU during output from the burner difficult or almost impossible. It is noteworthy that neither Nutten et al nor Reichhelm teach adjustable BTU output from their respective burners. Nutten et al are concerned with operation of their burner if air pressure terminates. They are not concerned with BTU output. Similarly, Reichhelm is interested in a combustion flame which is constant. He is not concerned about adjustable BTU output. Reichhelm requires an optimized temperature range of his combustion and this is obtained with a "thermostatic switch" (column 6, line 30). There is no provision for adjusting the BTU output by changing the optimum temperature of the flame and values 22 and 34 only allow a correct proportion

of air and fuel with valve 34 controlling the airflow and valve 22 controlling the liquid fuel flow.

For the Examiner's convenience, two brochures, are attached to this response as Exhibits 1 and 2. Exhibit 1 teaches a typical ball valve which would function in the Reichhelm and Nutten et al references for valves 22, 34, 58, respectively. Exhibit 2 teaches a metering valve. As the Examiner can see, precise fuel control is provided by the metering valve. This is important if the burner is to be used in certain applications and, in the present case, the application is heating food in field kitchens for military operations where adjustable BTU output is very important in order to properly cook different foods.

MPEP 2143.01 provides that "...the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Neither Nutten et al nor Reichhelm suggest that their ball valves 22, 34 and 58 may be replaced by metering valves. Since they are not concerned with BTU output of the flame, there is no particular advantage in replacing their valves with metering valves.

In 1975, the CCPA expressly held that there must be some logical reason apparent from the evidence of record that would justify a combination or modification of the references. In re Regal, 188 USPQ 132 (CCPA 1975). Where no reasonable intrinsic or extrinsic justification exists for the proposed combination or modification, prima facie obviousness is not established. In re Regal, supra. (emphasis added)

Furthermore, the references are not properly combinable or modifiable if their intended function is destroyed. Nutten et al do not teach adjustable air flow and adjustable fuel flow. Rather, the use of the air aspirated nozzle is designed to suction in the correct proportion of fuel. If the valves 34, 22

in Reichhelm were to be used with the Nutten et al apparatus, the intended function of Nutten et al apparatus would be destroyed since the proportion of air to fuel would necessarily be changed from that for which the nozzle was originally designed. Nutten et al cannot adjust their air flow and there is no provision for putting a valve on the air flow. Indeed, physically, there is no room available in Nutten et al to place a valve in the air passage so clearly such a valve is not possibly contemplated by Nutten et al.

35 USC 103 provides: "...A patent may not be obtained...if the differences between the subject matter sought to be patented in the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains." (emphasis added).

In the present case, the Examiner has ignored the requirement for a metering valve and, in addition, he has ignored the fact that the heater is an infrared burner. Accordingly, there is no prima facie case of obviousness established by the Examiner.

In view of the above, reconsideration and reexamination are requested. Withdrawal of the objections and rejections is requested and allowance of claims 1 through 8 is solicited.

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